REMARKS

Reconsideration of the application is requested.

Claims 14-26 remain in the application. Claims 14-26 are subject to examination. Claims 14 and 25 have been amended.

It is believed that no new issue requiring further search or consideration has been presented by the amendment as will be explained below, and entry of the clarifying amendment after the final rejection is requested.

Under the heading "Claim Objections" on page 2 of the above-identified Office Action, the Examiner objected to claims 14 and 25 as being ambiguous.

The Examiner stated it is unclear whether a constant power loss is being specified or whether one which lies somewhere in a required range of the sensor resistor. The Examiner stated that the claims have been construed in accordance with the latter interpretation.

Applicant respectfully believes that the previous state of claims clearly specified that the power loss is substantially constant.

Claims 14 and 25, however, have been amended to even more clearly specify the intended limitation. Claims 14 and 25 now specify that said reference

resistor is dimensioned such that a power loss of said sensor resistor is substantially constant for a range of values of said sensor resistor.

Support for the changes can be found by referring to the specification at page 19, line 7 through page 20, line 2. Therein it is taught that when using a reference resistor with a value of 10 ohms, for example, the sensor resistor should have a value between 17 and 37 ohms (the required range in this example). Curve 93, which is shown in Fig. 5, indicates that the power loss in the sensor resistor is substantially constant when the resistance of the sensor resistor is chosen to be between 17 and 37 ohms (the required range, or a range of values in this example).

The Examiner has already contemplated an interpretation of the claims in which the power loss is substantially constant. Applicant also points out that the previous argument was based on the fact that the power loss in the wire 13 of Tornare is not substantially constant. It is therefore believed that no new issue requiring further search or consideration has been presented by the amendment and entry of the clarifying amendment after the final rejection is requested.

Under the heading "Claim Rejections – 35 USC § 103" on page 3 of the above-identified Office Action, claims 14, 21-23 and 25 have been rejected as being obvious over French Patent Publication No. FR 2 835 056 to Tornare under 35 U.S.C. § 103. Applicant respectfully traverses.

The Examiner states that the pulse train 11 produced by the current generator of Tornare will create a voltage drop across the measurement resistor 12 and the resistive wire 13. The Examiner apparently believes that since the current generator of Tornare will create a voltage drop across the measurement resistor 12 and the resistive wire 13, the current generator of Tornare meets the limitations of the claimed current source.

According to the logic of the Examiner, there could never be a distinction between a current source and a voltage source because a current source is always going to cause a voltage drop across a resistive element and a voltage source is always going to cause a current to flow through a resistive element. As is explained below there is a significant difference between using a current source and using a voltage source.

Claims 14 and 25 specify that a voltage source has an output outputting an output voltage that drops at the sensor resistor and the reference resistor, which are connected in series. Claims 14 and 25 also specify that the reference resistor is dimensioned such that a power loss of the sensor resistor is substantially constant for a range of values of the sensor resistor.

Tornare does not teach or suggest either of the limitations copied above.

Contrary to claims 14 and 25, Tornare teaches applying a constant current to the series connection from the sensor (measuring) resistor and the reference resistor (items 12, 13). This causes an increase of the power loss generated in the measuring resistor in proportion to the resistance of the measuring resistor which changes with temperature ($P=I^{2*}Rsens$). This change falsifies the measured values.

The resistance of a resistor is usually measured by conducting a constant current through the resistor and by measuring the voltage drop across the resistor (this is what is taught in Tornare) or by applying a constant voltage across the resistor and by detecting the current flowing through the resistor. The resistance value can then be determined in accordance with the ohms law and the measured voltage or current value. Since the accuracy of such a measurement depends upon the accuracy of the applied current or voltage, very often a reference measurement is performed with regard to a reference resistor. The measuring principle, however, remains the same. Either a current is conducted through the resistors and a voltage is measured or a voltage is applied across the resistors and the current is measured. However, if a current is conducted through the resistor that is being measured, the resistor will heat up because of the current that flows through the resistor. However, since the resistor is actually used for measuring a temperature, this self-heating falsifies the measured value due to the flowing current. In addition, this falsification of the measured value is dependent upon the ambient

temperature and thus the temperature to be measured. This problem is not solved in Tornare, nor is it even recognized.

An important difference between the claimed invention and the teaching in Tornare is that, even though the voltage is measured at the resistors, a measuring current is not injected through the resistors, but rather a measuring voltage is applied across the resistors and this is contrary to known procedures. The consequence is that, due to an increase of the resistance of the measuring resistor because of an increase in the temperature that is being measured, the current becomes smaller due to the constant voltage. This allows the power loss to be kept substantially constant.

Due to the voltage source which applied an output voltage to the series connection of the measuring resistor and the reference resistor and a suitable selection of the resistance of the reference resistor in relation to the measuring resistor, one achieves an approximately constant power loss in the temperature range to be measured and thus in the resistance range of the measuring resistor. In this case, the power loss influences the measured value to a much lesser extent. This advantage is achieved in that, despite the measurement of the voltage drop at the resistors, a constant current is not applied, but rather a constant voltage is applied across the resistors.

It should be clear that using a voltage source instead of the current source in Tornare is not a random exchange, but is based on inventive considerations, since it is contrary to measuring methods known from textbooks.

Applicant also points out that the terms, "current source" and "voltage source" have well defined meanings to everyone of ordinary skill in the art. The two are not interchangeable as the Examiner believes. Although applicant does not claim an "ideal" voltage source, the following explanation is provided to illustrate the difference between current and voltage sources. An ideal current source provides an output current that that is independent of the voltage across the current source. In contrast to an ideal current source, an ideal voltage source provides an output voltage that is independent of the current flowing through the voltage source. The current generator of Tornare does not meet the requirements of the claimed voltage source.

In fact Tornare specifically teach that the voltage 24 at the terminals of the measurement resistor 12 is proportional to the current 23 provided by the current generator. Please see the second and the next to last paragraphs on page 5 of the translation of Tornare that was provided with the previously filed response. It naturally follows that the voltage across the measurement resistor 12 and the wire 13 is proportional to the current 23 provided by the current generator. Therefore the voltage across the current generator of Tornare is proportional to the current 23 flowing through the current generator rather than being independent of the current 23 as is required in order to meet the

requirements of a voltage source. The current generator of Tornare does not meet the requirements of the voltage source in claims 14 and 25.

Applicant next points out that claims 14 and 25 specify that said reference resistor is dimensioned such that a power loss of said sensor resistor is substantially constant for a range of values of said sensor resistor.

To be sure that the issue is clear, applicant again refers to page 19 of the translated specification and to Fig. 5 where it is explained that the power loss in the sensor resistor will be constant for a range of values of the sensor resistor, for example for a range from 17 to 37 ohms. Tornare is entirely silent on such a limitation.

Furthermore, applicant points to curve 94 on Fig. 5 and to page 19, lines 16-19 of the specification of this application, where it is specifically taught that the power loss in a sensor resistor would not be substantially constant if a constant current regulator were used instead of the claimed voltage source. Note that curve 94 (Fig. 5), which represents the power loss in a sensor resistor with a constant current regulator, shows that the power loss in the sensor resistor increases as the resistance of the sensor resistor increases, for example, in a range from 17 to 37 ohms.

Applicants believe it is clear that Tornare does not anticipate or suggest the invention as defined by claims 14 and 25.

Under the heading "Claim Rejections – 35 USC § 103" on page 5 of the above-identified Office Action, claims 15-16 and 18 have been rejected as being obvious over French Patent Publication No. FR 2 835 056 to Tornare in view of U.S. Patent No. 6,917,243 B2 to Doherty et al. under 35 U.S.C. § 103. Applicant respectfully traverses.

The invention as defined by claims 15-16 and 18 is not suggested by Tornare and Doherty for the reasons given above with regard to claim 14 and the teaching in Tornare.

Under the heading "Claim Rejections – 35 USC § 103" on page 6 of the above-identified Office Action, claim 17 has been rejected as being obvious over French Patent Publication No. FR 2 835 056 to Tornare in view of U.S. Patent No. 6,917,243 B2 to Doherty et al. and further in view of U.S. Patent No. 4,151,456 to Black under 35 U.S.C. § 103. Applicant respectfully traverses.

The invention as defined by claim 17 is not suggested by Tornare, Doherty, and Black for the reasons given above with regard to claim 14 and the teaching in Tornare.

Under the heading "Claim Rejections – 35 USC § 103" on page 7 of the above-identified Office Action, claim 26 has been rejected as being obvious over French Patent Publication No. FR 2 835 056 to Tornare in view of U.S. Patent

No. 4,151,456 to Black under 35 U.S.C. § 103. Applicant respectfully traverses.

The invention as defined by claim 26 is not suggested by Tornare and Black for the reasons given above with regard to claim 25 and the teaching in Tornare.

Under the heading "Claim Rejections – 35 USC § 103" on page 8 of the above-identified Office Action, claims 19 and 20 have been rejected as being obvious over French Patent Publication No. FR 2 835 056 to Tornare in view of U.S. Patent No. 6,917,243 B2 to Doherty et al. and further in view of U.S. Patent No. 6,873,838 B2 to Mapes under 35 U.S.C. § 103. Applicant respectfully traverses.

The invention as defined by claims 19 and 20 is not suggested by Tornare, Doherty, and Mapes for the reasons given above with regard to claim 14 and the teaching in Tornare.

Under the heading "Claim Rejections – 35 USC § 103" on page 9 of the above-identified Office Action, claim 20 has been rejected as being obvious over French Patent Publication No. FR 2 835 056 to Tornare in view of U.S. Patent No. 6,917,243 B2 to Doherty et al. and further in view of U.S. Patent No. 6,873,838 B2 to Mapes and further in view of U.S. Publication No. 2003/0011434 A1 to Luo et al. under 35 U.S.C. § 103. Applicant respectfully traverses.

The invention as defined by claim 20 is not suggested by Tornare, Doherty, Mapes, and Luo for the reasons given above with regard to claim 14 and the teaching in Tornare.

Under the heading "Claim Rejections – 35 USC § 103" on page 10 of the above-identified Office Action, claim 24 has been rejected as being obvious over French Patent Publication No. FR 2 835 056 to Tornare in view of U.S. Publication No. 2002/0084844 A1 to Monroe under 35 U.S.C. § 103. Applicant respectfully traverses.

The invention as defined by claim 24 is not suggested by Tornare and Monroe for the reasons given above with regard to claim 14 and the teaching in Tornare.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claims 14 or 25. Claims 14 and 25 are, therefore, believed to be patentable over the art. The dependent claims are believed to be patentable as well because they all are ultimately dependent on claim 14 or 25.

In view of the foregoing, reconsideration and allowance of claims 14-26 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate receiving a telephone call so that, if possible, patentable language can be worked out.

Please charge any fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner Greenberg Stemer LLP, No. 12-1099.

Respectfully submitted,

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MPW:cgm

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